

ABSTRACT

A heterojunction bipolar transistor is formed in a semiconductor substrate of a first conductivity type including a collector region. A base region is formed on the substrate and an emitter region is formed over the base region. At least one of the collector, base and emitter regions includes a first region doped with an impurity having a first concentration and a second region doped with the impurity having a second concentration. Noise performance and reliability of the heterojunction bipolar transistor is improved without degrading ac performance.